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NOTICE OF ALLOWANCE AND FEE(S) DUE

85775 7590 05/28/2010

Locke Lord Bissell & Liddell LLP
Attn: IP Docketing
Three World Financial Center
New York, NY 10281-2101

EXAMINER

DUFT, ADITI

ART UNIT

PAPER NUMBER

1649

DATE MAILED: 05/28/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,707	10/27/2005	Masataka Kuwana	1004316.009US (4439-4036)	2198

TITLE OF INVENTION: MONOCYTE-ORIGIN MULTIPOTENT CELL MOMC

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/30/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

85775 7590 05/28/2010
 Locke Lord Bissell & Liddell LLP
 Attn: IP Docketing
 Three World Financial Center
 New York, NY 10281-2101

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,707	10/27/2005	Masataka Kuwana	1004316.009US (4439-4036)	2198
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nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/30/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUTT, ADITI	1649	435-325000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/549,707	10/27/2005	Masataka Kuwana	1004316.009US (4439-4036)	2198
85775	7590	05/28/2010	EXAMINER	
Locke Lord Bissell & Liddell LLP Attn: IP Docketing Three World Financial Center New York, NY 10281-2101			DUFF, ADITI	
			ART UNIT	PAPER NUMBER
			1649	
DATE MAILED: 05/28/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/549,707

Applicant(s)

KUWANA ET AL.

Examiner

Aditi Dutt

Art Unit

1649

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/10/2010.
2. ☒ The allowed claim(s) is/are 2-10 (renumbered as 1-9).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Status of Claims

1. The amendments filed on 13 April 2010 have been entered into the record and have been fully considered. The amendments dated 10 May 2010 providing an updated sequence listing is acknowledged and entered into the record.
2. Applicant's submission of the English language translation of the Japanese Patent Application No. 2003-074573 dated 18 March 2003, submitted on 13 April 2010, accompanied with a statement by Ms. Emiko Oku of Hirota and Associates that the translation of the foreign priority document is accurate is considered and acknowledged. In light of the above submission, the pending rejection of claims under 35 USC 102(a) is withdrawn.
3. Claims 2-16, 19-20 and 22 are pending in this Office Action.
4. Claims 2-8, directed to a product (MOMC) are allowable. Pursuant to the procedures set forth in MPEP § 821.04(B), claims 9-10 is directed to the process of making the allowable product, previously withdrawn from consideration as drawn to a non-elected invention, is hereby rejoined and fully examined for patentability under 37 CFR 1.104.
5. As indicated in the restriction requirement as set forth in the Office action mailed on 15 December 2006, process claims that incorporate all the limitations of product claims will be entered and examined after the allowance of the product claims. Claims 9 and 10 are directed to process claims drawn to a non-elected

invention II and depending from claim 2, will be rejoined and examined in the instant application. In view of the withdrawal of the restriction requirement with respect to the rejoined inventions, applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

6. Claims 2-10, and 9-10, directed to a monocyte-derived multipotent cell (MOMC), that expresses CD14, CD34 and CD45, type I collagen and HLA-DR, wherein the cell differentiates into osteoblast, skeletal myoblast, chondrocytes, adipocytes, neurons, endothelial cells, and mesodermal cells, and a method for preparing the said MOMC, are being considered for examination in the instant application.
7. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to the applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
8. Authorization for this examiner's amendment was given following a telephone interview with Serge Ilin-Scheider, Ph.D., on 6 May 2010.

The application has been amended as follows:

9. Please update the following to read as follows (portions that are struck through or are within parenthesis indicate deletions, while portions that are underlined indicate insertions):

Claims:

Claims 11-16, 19-20, and 22 are canceled.

Claim 9 (Currently amended): A method for preparing a the monocyte-derived multipotent cell according to claim 2, comprising culturing peripheral blood mononuclear cells (PBMCs) in vitro on fibronectin, and collecting fibroblast-like cells expressing CD14, ~~and~~ CD34, CD45, type I collagen, and HLA-DR.

Claim 10 (Currently amended): The method for preparing a the monocyte-derived multipotent cell according to claim 9, comprising culturing in vitro on fibronectin for 5 to 14 days.

Specification

Please amend the specification and insert SEQ ID numbers as follows:

- (i) Page 26 (paragraph 2, lines 11, 12)

MOMCs were cocultured with Wistar rat cultured myocardial cells for 3, 6, 9, and 12 days, and mRNA was extracted. Human specific PCR primers (TGACAAGAACGATCTGAGAG[~~]~~) (SEQ ID NO: 1), CAGGTTCTTGAGTCCAAGT (SEQ ID NO: 2) to myocin light chain (MLC2v) being a myocardial cell structural protein were constructed and

RT-PCR was performed.

(ii) Page 33, Table 1

(Table 1) Gene	Primer sequences	Product size(bp)
Osterix	Sense: 5'-CTTGTGCCTGATACCTGCACT-3' (<u>SEQ ID NO: 3</u>) Antisense: 5'-TCACTCTACCTGACCCGTATC-3' (<u>SEQ ID NO: 4</u>)	470
Bone sialoprotein II	Sense: 5'-AAACGGCACCAGTACCAACA -3' (<u>SEQ ID NO: 5</u>) Antisense: 5'-GCCATCGTAGCCTTGTCCTT-3' (<u>SEQ ID NO: 6</u>)	394
Osteocalcin	Sense: 5'-GGCAGCGAGGTAGTGAAGAGAC-3' (<u>SEQ ID NO: 7</u>) Antisense: 5'-GGCAAGGGGAAGAGGAAAGAAG-3' (<u>SEQ ID NO: 8</u>)	257
SkM-MHC	Sense: 5'-ATAGGAACACCCAAGCCATC-3' (<u>SEQ ID NO: 9</u>) Antisense: 5'-TTTGCCTAGACCCCTTGACAG-3' (<u>SEQ ID NO: 10</u>)	599
Myogenin	Sense: 5'-TGGCCTTCCCAGATGAAACC-3' (<u>SEQ ID NO: 11</u>) Antisense: 5'-GCATCGGGAAGAGACCAGAA-3' (<u>SEQ ID NO: 12</u>)	452
α1(II) collagen	Sense: 5'-TTCAGCTATGGAGATGACAATC-3' (<u>SEQ ID NO: 13</u>) Antisense: 5'-AGAGTCCTAGAGTGACTGAG-3' (<u>SEQ ID NO: 14</u>)	472
α1(X) collagen	Sense: 5'-AATCCCTGGACCGGCTGGAATTC-3' (<u>SEQ ID NO: 15</u>) Antisense: 5'-TTGATGCCTGGCTGTCCTGGACC-3' (<u>SEQ ID NO: 16</u>)	267
PPARγ	Sense: 5'-AGGAGCAGAGCAAAGAGGTG-3' (<u>SEQ ID NO: 17</u>) Antisense: 5'-AGGACTCAGGGTGGTTCAGC-3' (<u>SEQ ID NO: 18</u>)	474
aP2	Sense: 5'-TATGAAAGAAGTAGGAGTGGGC-3' (<u>SEQ ID NO: 19</u>) Antisense: 5'-CCACCACAGTTTATCATCCTC-3' (<u>SEQ ID NO: 20</u>)	290
CD34	Sense: 5'-CCTCCCAAGTTTTAGGACAA-3' (<u>SEQ ID NO: 21</u>)	362

	Antisense:5'-CAGCTGGTGATAAGGGTTAG-3' (SEQ ID NO: 22)	
CD45	Sense:5'-AACCTGAAGTGATGATTGCTG-3' (SEQ ID NO: Q 23)	500
	Antisense:5'-TACCTCTTCTGTTCCGCAC-3' (SEQ ID NO: 24)	
CD14	Sense:5'-CTGCGTGTGCTAGCGTACTC-3' (SEQ ID NO: 25)	655
	Antisense:5'-CGTCCAGTGTCAGGTTATCC-3' (SEQ ID NO: 26)	
Cbfa1/Runx2	Sense:5'-GTCTTACCCCTCCTACCTGA-3' (SEQ ID NO: 27)	183
	Antisense:5'-TGCCTGGCTCTTCTTACTGA-5' (SEQ ID NO: 28)	
MyoD	Sense:5'-CCTAGACTACCTGTCCAGCATC-3' (SEQ ID NO: 29)	365
	Antisense:5'-GGCGGAAACTTCAGTTCTCC-3' (SEQ ID NO: 30)	
Sox-9	Sense:5'-CCCGATCTGAAGAAGGAGAGC-3' (SEQ ID NO: 31)	380
	Antisense:5'-GTTCTTACCGACTTCCTCCG-3' (SEQ ID NO: 32)	
GAPDH	Sense:5'-TGAACGGGAAGCTCACTGG-3' (SEQ ID NO: 33)	307
	Antisense:5'-TCCACCACCTGTTGCTGA-3' (SEQ ID NO: 34)	

Advisory information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aditi Dutt whose telephone number is (571) 272-9037. The examiner can normally be reached on Monday through Friday, 9:00 a.m. to 5:00 p.m.
11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker, can be reached on (571) 272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR

Art Unit: 1649

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AD

10 May 2010

/Jeffrey Stucker/

Supervisory Patent Examiner, Art Unit 1649